

Work Order ID 160115

Friday, April 21, 2017 11:45:42 AM

160115

Page 1

Item ID: D4025-5 Accept *N900040100* Setup Start *NS1*

Revision ID: Stop *NS2*

Item Name: Fuel Quantity Sender

Start Date: 4/24/2017 Start Qty: 2.00 *2*

Required Date: 5/8/2017 Req'd Qty: 2.00 *2*

Reference: SCHEDULED

Cust Item ID:

Customer:

Approvals: Process Plan: DAS 21 Date: APR 21 2017 Tooling: _____ Date: _____ Run Start *NR1*

QC: 9-89 Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D4025	B

100		0.00							DAS 13 9-89
100									
Purchasing	Memo	0.00							2 APR 28 2017
Purchasing	Issue P/O: <u>36144</u>								
	Purchase part as per Dwg D4025								
	Part #: 224-260								
	Possible Supplier: Forsters Intruments								
	Material release note required								

110	Receive & Inspect for Damage & Mat'l Certs	0.00							
110									
Packaging	Memo	0.04							
Packaging	***HOLD IN VERTICAL POSITION AND MEASURE RESISTANCE READING FOR LOWER LIMIT. ROTATE 180 DEGREES AND MEASURE RESISTANCE FOR UPPER LIMIT AS PER DWG***								
	REMOVE TRANSPORT PIN								

2 x sp H-51

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER :					

Work Order ID 160115

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160115

Page 2

Item ID: D4025-5 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Fuel Quantity Sender
Start Date: 4/24/2017 Start Qty: 2.00 ***2*** Cust Item ID:
Required Date: 5/8/2017 Req'd Qty: 2.00 ***2*** Customer:
Reference: SCHEDULED

Approvals: Process Plan: Date: Tooling: Date: Run Start ***NR1***
QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* QC Quality Control	QC6- Inspect dimensions to drawing Memo ***REMOVE TRANSPORT PIN***	0.00 0.00				4			DAS 38 9-89 MAY 11 2017
130 *130* Packaging Packaging	Identify as per dwg & Stock Location: <u>8240</u> Memo	0.00 0.02				4			DAS 6 3-88 MAY 12 2017
140 *140* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.20							17/5/15 JA DAS 21 9-86 MAY 12 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Picklist Print

Friday, April 21, 2017 11:45:45 AM

Page 1

Work Order ID: 160115

160115

Parent Item: D4025-5

D4025-5

Parent Item Name: Fuel Quantity Sender

Start Date: 4/24/2017

Required Date: 5/8/2017

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP REV:A 11.11.22 NEW ISSUE DD VERF;EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

224-260

Purchased

No

110

Each

0.0000

1

224-260

Fuel Sender 224-260-SP

**

4x50 17-51

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

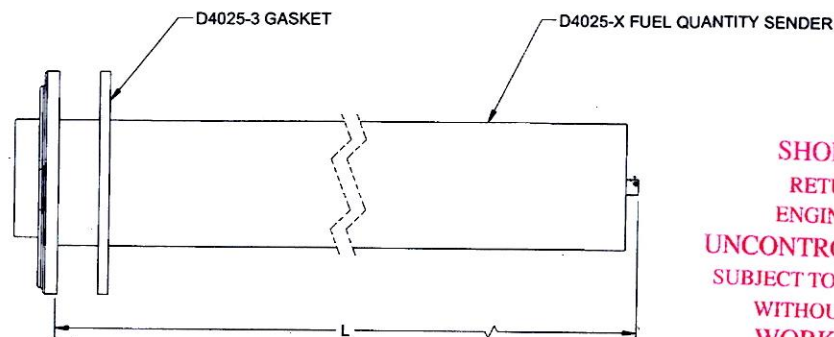
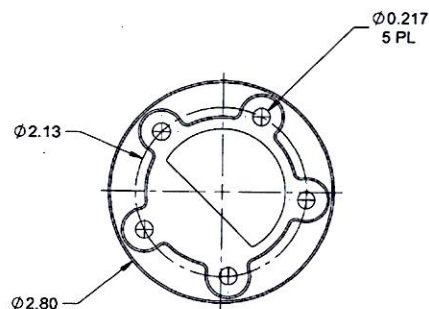
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

DART AEROSPACE PART NUMBER	JOHN CAMERON AVIATION PART NUMBER
D4025-1	VDO-M47-JCA
D4025-3	N/A
D4025-5	N/A

SPECIFICATION CONTROL DRAWING



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 160115405
170421

DART PART NUMBER	DESCRIPTION	MANUFACTURER	MANUFACTURER PART NUMBER	POSSIBLE SUPPLIER	SUPPLIER PART NUMBER	LENGTH "L"	LOWER RESISTANCE LIMIT	UPPER RESISTANCE LIMIT	MATERIAL
D4025-1	FUEL QUANTITY SENDER	VDO SIEMENS	224-011-000-650	FORSTER INSTRUMENTS	224-265	25.59	82.2 ± 2.5 OHMS	2.5 ± 1.5 OHMS	N/A
D4025-3	GASKET	VDO SIEMENS	N/A	FORSTER INSTRUMENTS	226-053	N/A	N/A	N/A	RUBBER
D4025-5	FUEL QUANTITY SENDER	VDO SIEMENS	224-011-000-600	FORSTER INSTRUMENTS	224-260	23.62	85.3 ± 2.5 OHMS	2.5 ± 1.5 OHMS	N/A

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4025-X" AND B/N USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: D4025-1 - 0.39 lbs
D4025-3 - 0.01 lbs
D4025-5 - 0.37 lbs
- 8) RECEIVING INSPECTION REQUIREMENTS:
 - a) REMOVE TRANSPORT PIN AND INSPECT FOR VISUAL DAMAGE
 - b) OVERALL CYLINDER LENGTH - SEE TABLE
 - c) HOLD IN VERTICAL POSITION AND MEASURE RESISTANCE READING FOR LOWER LIMIT
 - d) ROTATE 180° AND MEASURE RESISTANCE FOR UPPER LIMIT

RELEASED
2011-11-16

B	ADDED -3, ADDED SUPPLIER PART NO.	BC	11.10.04
A	NEW ISSUE	HS	10.02.05
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	11.10.04		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D4025	REV. B SHEET 1 OF 1
TITLE FUEL SENDER	SCALE NTS
COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

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OTHER : _____					

**Purchase Order ID PO36144**

Page Number 1 of 2

E-MAILED
APR 28 2017

Buyer	Chantal Lavoie
Customer POID	
Customer Tax #	10127-2607
Terms	Net 30
Currency	CAD
FOB	FCA – (Free Carrier)

4/28/2017

**FORSTER INSTRUMENTS INC.**

7141 EDWARDS BLVD., MISSISSAUGA, ONTARIO L5S 1Z2
D - U - N - S 25 - 530 - 6649
PHONE (905) 795-0555 • FAX (905) 795-0570
TOLL FREE 1-800-661-2994 • TOLL FREE FAX 1-800-632-9943
Toll Free within Canada only

Automotive and Industrial Instruments, Controls and Equipment

TERMS AND CONDITIONS

- net 30 days from date of invoice unless otherwise stated.
- pay from invoice, statements upon request only.
- all claims for shortage must be made within ten days after receipt of goods.
- all claims for damage must be made with the carrier.
- all goods F.O.B. our Mississauga warehouse.
- orders subject to a minimum invoice value of \$50.00.
- goods cannot be returned without our Return Authorization Number.
- returned goods must be freight prepaid.
- any warranty expressed or implied is that of the manufacturer as stated in their literature.
- title of goods does not pass until goods are paid for in full.
- E. & O. E.

A/C 10.44

Page: 1

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DART AEROSPACE LTD.
1270 ABERDEEN STREET

HAWKESBURY, ON K6A 1K7

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DART AEROSPACE LTD.
1270 ABERDEEN STREET

HAWKESBURY, ON K6A 1K7

CUSTOMER	CUST. ORDER NO.	G.S.T. NUMBER	PROV. TAX NO.	S/M TYPE	PACKED BY
DARAER	P036144	R101272607		SLOA	
ORDER DATE	DATE SHIPPED	OUR SALES ORDER NO.	SHIPPING REF. NO.	SHIP VIA	
28.04.17		S74793	01	FED EX	
LINE NO.	QUAN.	SHIP.	B/O	PART NUMBER	DESCRIPTION

FED EX ACCT# 15179324-0

FUEL SENDER # 224-260-SP &
224-265-SP NEED
TO BE CERTIFIED FOR ACCURACY
PER
CUSTOMER DRAWING.
PARTS NEED TO BE TESTED FOR
OHMS

FUEL SENDERS AS PER CUSTOMER
SPECS.

SHIP 8 MAY 2017
DUE 10 MAY 2017

002

4

4

0 224-260

FUEL SENDER, 23.6", 54 mm DIA.

PRI

LINE 1

SP17-511

DAS
38
9-89



FORSTER INSTRUMENTS INC.



Gauge & Sender In-Process/ Final Inspection Form

Sales Order #:	<u>574793</u>	Cust. Prod:	<u>—</u>	Start Date:	<u>MAY 8/17</u>
Forster Part #:	<u>224-260-SP</u>	Rev:	<u>MR B</u>		
Product Description:	<u>FUEL SENDER 23.6" 54M</u>	Qty:	<u>4</u>		

Harness In-Process	Tolerance	Within Spec.	Inspector's Initial:	Corrections Needed:
Continuity	.1/ .5 ohm			
Visual	N/A			
Pull Test	1 to 2 in/lbs.			

Gauge In-Process	Function	Within Spec.	Inspector's Initial:	Correction Needed:
Visual	N/A			

Final Inspection Gauge & Sender/Harness Assembled:				
	Tolerance	Within Spec.	Inspector's Initial:	Correction Needed:
Visual	N/A	✓	CKK	
Gauge/Speed Sw Settings	FS HZ @ SW. CL.-			
Sender	Resistance	✓	CKK	
	Vpp			
	Freq:			
	Duty Cycle:			

	Function:	Within Spec:	Inspector's Initial:	Correction Needed:
Test Assembly on test bench with test harness.	✓	✓	CKK	

Comments:
Completion Date: <u>MAY 8/17</u>

	FULL	EMPTY
1ST	3.1	86.8
2ND	3.7	86.6
3RD	3.6	86.7
4th	3.0	85.0